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<110> Karras, James G

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<151> 2003-11-14

<150> 09/758,881

<151> 2001-01-11

<150> PCT/US00/09054

<151> 2000-04-06

<150> 09/288,461

<151> 1999-04-08

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 ggccagtcgg gcctcagccc cggagacagt cgagaccct gactgcagca gg atg gct 178
 Met Ala
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cag tgg aac cag ctg cag cag ctg gac aca cgc tac ctg gag cag ctg 226
 Gln Trp Asn Gln Leu Gln Gln Leu Asp Thr Arg Tyr Leu Glu Gln Leu
 5 10 15

cac cag ctg tac agc gac acg ttc ccc atg gag ctg cgg cag ttc ctg 274
 His Gln Leu Tyr Ser Asp Thr Phe Pro Met Glu Leu Arg Gln Phe Leu
 20 25 30

gca cct tgg att gag agt caa gac tgg gca tat gca gcc agc aaa gag	322
Ala Pro Trp Ile Glu Ser Gln Asp Trp Ala Tyr Ala Ala Ser Lys Glu	
35 40 45 50	
tca cat gcc acg ttg gtg ttt cat aat ctc ttg ggt gaa att gac cag	370
Ser His Ala Thr Leu Val Phe His Asn Leu Leu Gly Glu Ile Asp Gln	
55 60 65	
caa tat agc cga ttc ctg caa gag tcc aat gtc ctc tat cag cac aac	418
Gln Tyr Ser Arg Phe Leu Gln Glu Ser Asn Val Leu Tyr Gln His Asn	
70 75 80	
ctt cga aga atc aag cag ttt ctg cag agc agg tat ctt gag aag cca	466
Leu Arg Arg Ile Lys Gln Phe Leu Gln Ser Arg Tyr Leu Glu Lys Pro	
85 90 95	
atg gaa att gcc cgg atc gtg gcc cga tgc ctg tgg gaa gag tct cgc	514
Met Glu Ile Ala Arg Ile Val Ala Arg Cys Leu Trp Glu Glu Ser Arg	
100 105 110	
ctc ctc cag acg gca gcc acg gca gcc cag caa ggg ggc cag gcc aac	562
Leu Leu Gln Thr Ala Ala Thr Ala Ala Gln Gln Gly Gly Gln Ala Asn	
115 120 125 130	
cac cca aca gcc gcc gta gtg aca gag aag cag cag atg ttg gag cag	610
His Pro Thr Ala Ala Val Val Thr Glu Lys Gln Gln Met Leu Glu Gln	
135 140 145	
cat ctt cag gat gtc cgg aag cga gtg cag gat cta gaa cag aaa atg	658
His Leu Gln Asp Val Arg Lys Arg Val Gln Asp Leu Glu Gln Lys Met	
150 155 160	
aag gtg gtg gag aac ctc cag gac gac ttt gat ttc aac tac aaa acc	706
Lys Val Val Glu Asn Leu Gln Asp Asp Phe Asp Phe Asn Tyr Lys Thr	
165 170 175	
ctc aag agc caa gga gac atg cag gat ctg aat gga aac aac cag tct	754
Leu Lys Ser Gln Gly Asp Met Gln Asp Leu Asn Gly Asn Asn Gln Ser	
180 185 190	
gtg acc aga cag aag atg cag cag ctg gaa cag atg ctc aca gcc ctg	802
Val Thr Arg Gln Lys Met Gln Gln Leu Glu Gln Met Leu Thr Ala Leu	
195 200 205 210	
gac cag atg cgg aga agc att gtg agt gag ctg gcg ggg ctc ttg tca	850
Asp Gln Met Arg Arg Ser Ile Val Ser Glu Leu Ala Gly Leu Leu Ser	
215 220 225	
gca atg gag tac gtg cag aag aca ctg act gat gaa gag ctg gct gac	898
Ala Met Glu Tyr Val Gln Lys Thr Leu Thr Asp Glu Glu Leu Ala Asp	
230 235 240	
tgg aag agg cgg cag cag atc gcg tgc atc gga ggc cct ccc aac atc	946
Trp Lys Arg Arg Gln Gln Ile Ala Cys Ile Gly Gly Pro Pro Asn Ile	

245				250				255								
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Cys	Leu	Asp	Arg	Leu	Glu	Asn	Trp	Ile	Thr	Ser	Leu	Ala	Glu	Ser	Gln	
260				265				270								
ctt	cag	acc	cgc	caa	caa	att	aag	aaa	ctg	gag	gag	ctg	cag	cag	aaa	1042
Leu	Gln	Thr	Arg	Gln	Gln	Ile	Lys	Lys	Leu	Glu	Glu	Leu	Gln	Gln	Lys	
275				280				285				290				
gtg	tcc	tac	aag	ggc	gac	cct	atc	gtg	cag	cac	cgg	ccc	atg	ctg	gag	1090
Val	Ser	Tyr	Lys	Gly	Asp	Pro	Ile	Val	Gln	His	Arg	Pro	Met	Leu	Glu	
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gag	agg	atc	gtg	gag	ctg	ttc	aga	aac	tta	atg	aag	agt	gcc	ttc	gtg	1138
Glu	Arg	Ile	Val	Glu	Leu	Phe	Arg	Asn	Leu	Met	Lys	Ser	Ala	Phe	Val	
				310				315				320				
gtg	gag	cgg	cag	ccc	tgc	atg	ccc	atg	cac	ccg	gac	cgg	ccc	tta	gtc	1186
Val	Glu	Arg	Gln	Pro	Cys	Met	Pro	Met	His	Pro	Asp	Arg	Pro	Leu	Val	
				325				330				335				
atc	aag	act	ggc	gtc	cag	ttt	acc	acg	aaa	gtc	agg	ttg	ctg	gtc	aaa	1234
Ile	Lys	Thr	Gly	Val	Gln	Phe	Thr	Thr	Lys	Val	Arg	Leu	Leu	Val	Lys	
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Phe	Pro	Glu	Leu	Asn	Tyr	Gln	Leu	Lys	Ile	Lys	Val	Cys	Ile	Asp	Lys	
355				360				365				370				
gac	tct	ggg	gat	gtt	gct	gcc	ctc	aga	ggg	tct	cgg	aaa	ttt	aac	att	1330
Asp	Ser	Gly	Asp	Val	Ala	Ala	Leu	Arg	Gly	Ser	Arg	Lys	Phe	Asn	Ile	
				375				380				385				
ctg	ggc	acg	aac	aca	aaa	gtg	atg	aac	atg	gag	gag	tct	aac	aac	ggc	1378
Leu	Gly	Thr	Asn	Thr	Lys	Val	Met	Asn	Met	Glu	Glu	Ser	Asn	Asn	Gly	
				390				395				400				
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Ser	Leu	Ser	Ala	Glu	Phe	Lys	His	Leu	Thr	Leu	Arg	Glu	Gln	Arg	Cys	
				405				410				415				
ggg	aat	gga	ggc	cgt	gcc	aat	tgt	gat	gcc	tcc	ttg	atc	gtg	act	gag	1474
Gly	Asn	Gly	Gly	Arg	Ala	Asn	Cys	Asp	Ala	Ser	Leu	Ile	Val	Thr	Glu	
				420				425				430				
gag	ctg	cac	ctg	atc	acc	ttc	gag	act	gag	gtg	tac	cac	caa	ggc	ctc	1522
Glu	Leu	His	Leu	Ile	Thr	Phe	Glu	Thr	Glu	Val	Tyr	His	Gln	Gly	Leu	
435				440				445				450				
aag	att	gac	cta	gag	acc	cac	tcc	ttg	cca	gtt	gtg	gtg	atc	tcc	aac	1570
Lys	Ile	Asp	Leu	Glu	Thr	His	Ser	Leu	Pro	Val	Val	Val	Ile	Ser	Asn	
				455				460				465				
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Ile	Cys	Gln	Met	Pro	Asn	Ala	Trp	Ala	Ser	Ile	Leu	Trp	Tyr	Asn	Met	
			470					475					480			
ctg	acc	aat	aac	ccc	aag	aac	gtg	aac	ttc	ttc	act	aag	ccg	cca	att	1666
Leu	Thr	Asn	Asn	Pro	Lys	Asn	Val	Asn	Phe	Phe	Thr	Lys	Pro	Pro	Ile	
		485					490					495				
gga	acc	tgg	gac	caa	gtg	gcc	gag	gtg	ctc	agc	tgg	cag	ttc	tcg	tcc	1714
Gly	Thr	Trp	Asp	Gln	Val	Ala	Glu	Val	Leu	Ser	Trp	Gln	Phe	Ser	Ser	
	500					505					510					
acc	acc	aag	cga	ggg	ctg	agc	atc	gag	cag	ctg	aca	acg	ctg	gct	gag	1762
Thr	Thr	Lys	Arg	Gly	Leu	Ser	Ile	Glu	Gln	Leu	Thr	Thr	Leu	Ala	Glu	
515					520					525					530	
aag	ctc	cta	ggg	cct	ggg	gtg	aac	tac	tca	ggg	tgt	cag	atc	aca	tgg	1810
Lys	Leu	Leu	Gly	Pro	Gly	Val	Asn	Tyr	Ser	Gly	Cys	Gln	Ile	Thr	Trp	
			535					540						545		
gct	aaa	ttc	tgc	aaa	gaa	aac	atg	gct	ggc	aag	ggc	ttc	tcc	ttc	tgg	1858
Ala	Lys	Phe	Cys	Lys	Glu	Asn	Met	Ala	Gly	Lys	Gly	Phe	Ser	Phe	Trp	
			550					555					560			
gtc	tgg	cta	gac	aat	atc	atc	gac	ctt	gtg	aaa	aag	tat	atc	ttg	gcc	1906
Val	Trp	Leu	Asp	Asn	Ile	Ile	Asp	Leu	Val	Lys	Lys	Tyr	Ile	Leu	Ala	
		565					570					575				
ctt	tgg	aat	gaa	ggg	tac	atc	atg	ggg	ttc	atc	agc	aag	gag	cgg	gag	1954
Leu	Trp	Asn	Glu	Gly	Tyr	Ile	Met	Gly	Phe	Ile	Ser	Lys	Glu	Arg	Glu	
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cgg	gcc	atc	cta	agc	aca	aag	ccc	ccg	ggc	acc	ttc	cta	ctg	cgc	ttc	2002
Arg	Ala	Ile	Leu	Ser	Thr	Lys	Pro	Pro	Gly	Thr	Phe	Leu	Leu	Arg	Phe	
595					600					605					610	
agc	gag	agc	agc	aaa	gaa	gga	ggg	gtc	act	ttc	act	tgg	gtg	gaa	aag	2050
Ser	Glu	Ser	Ser	Lys	Glu	Gly	Gly	Val	Thr	Phe	Thr	Trp	Val	Glu	Lys	
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gac	atc	agt	ggc	aag	acc	cag	atc	cag	tct	gta	gag	cca	tac	acc	aag	2098
Asp	Ile	Ser	Gly	Lys	Thr	Gln	Ile	Gln	Ser	Val	Glu	Pro	Tyr	Thr	Lys	
			630					635					640			
cag	cag	ctg	aac	aac	atg	tca	ttt	gct	gaa	atc	atc	atg	ggc	tat	aag	2146
Gln	Gln	Leu	Asn	Asn	Met	Ser	Phe	Ala	Glu	Ile	Ile	Met	Gly	Tyr	Lys	
		645					650					655				
atc	atg	gat	gcg	acc	aac	atc	ctg	gtg	tct	cca	ctt	gtc	tac	ctc	tac	2194
Ile	Met	Asp	Ala	Thr	Asn	Ile	Leu	Val	Ser	Pro	Leu	Val	Tyr	Leu	Tyr	
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ccc	gac	att	ccc	aag	gag	gag	gca	ttt	gga	aag	tac	tgt	agg	ccc	gag	2242
Pro	Asp	Ile	Pro	Lys	Glu	Glu	Ala	Phe	Gly	Lys	Tyr	Cys	Arg	Pro	Glu	
675					680					685					690	

112

agc	cag	gag	cac	ccc	gaa	gcc	gac	cca	ggg	agt	gct	gcc	ccg	tac	ctg	2290
Ser	Gln	Glu	His	Pro	Glu	Ala	Asp	Pro	Gly	Ser	Ala	Ala	Pro	Tyr	Leu	
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aag	acc	aag	ttc	atc	tgt	gtg	aca	cca	ttc	att	gat	gca	ggt	tgg	aaa	2338
Lys	Thr	Lys	Phe	Ile	Cys	Val	Thr	Pro	Phe	Ile	Asp	Ala	Val	Trp	Lys	
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